MULCHING AND MATTING

Definition

Application of plant residues or other suitable materials to the soil surface. This provides immediate protection to exposed soils during periods of short construction delays, or over winter months. Mulch also enhances plant establishment by conserving moisture and moderating soil temperatures. Mulch helps hold fertilizer, seed, and topsoil in place in the presence of wind, rain and runoff and maintains moisture near the soil surface.

Conditions Where Practice Applies

- ✓ In areas that have been seeded either for temporary or permanent cover, mulching should immediately follow seeding.
- ✓ Any areas of exposed soil that cannot be seeded because of the season, or are otherwise unfavorable for plant growth.

Advantages

- ✓ Mulching offers instant protection to exposed areas.
- ✓ Many mulch materials are inexpensive and easy to apply.
- ✓ Mulches conserve moisture and reduce the need for irrigation, improving germination and promoting growth.
- ✓ Neither mulching nor matting requires removal; seeds can grow through them unlike plastic coverings.

Disadvantages/Problems

- ✓ Care must be taken to apply mulch at the specified thickness, and on steep slopes mulch must be supplemented with netting.
- ✓ Thick mulches can reduce the soil temperature, delaying seed germination.

Installation

- ✓ Straw — Use of straw is recommended where immediate protection is desired and preferably where the need for protection will be less than three months. The straw should come from wheat or oats, and may be spread by hand or machine. If the straw is not clean, weed growth can occur. Straw can be windblown and must be anchored down.

  Common anchoring methods are:

  1. Crimping, disking, rolling, or punching into the soil;
  2. Covering with netting;
  3. Spraying with a chemical or fiber binder (tackifier);
  4. Keeping moist – natural precipitation can often provide sufficient moisture.
- ✓ Corn Stalks — These should be shredded into 4- to 6-inch (100 to 150 mm) lengths. Stalks decompose slowly and are resistant to windblow.
- ✓ Wood Chips — Suitable for areas that will not be closely mowed, and around ornamental plantings. Chips decompose slowly and do not require tacking. They must be treated with 12 pounds nitrogen per ton (6 Kg per metric ton) to prevent nutrient deficiency in plants. Chips can be a very inexpensive mulch if they are obtained from trees cleared on the site. Island County Solid Waste often gives away free wood chips – check at the Coupeville transfer station. However, both wood and bark chips tend to wash down slopes of more than 6 percent and create problems by clogging inlet grates etc., and are therefore not preferred for use in those areas.
- ✓ Wood Fiber — Wood fiber is the mulch most commonly used in western Washington in conjunction with seeding. It is used in hydroseeding operations, applied as part of the slurry. These short cellulose fibers do not require tacking, although a tacking agent or soil binders are sometimes used with wood fiber. The longer the fiber length, the better the wood fiber will work in erosion control. This form of mulch does not provide sufficient protection to erodible soils to be used alone during the severe heat of summer or for late fall seedings. Wood fiber hydroseed slurries may be used to tack straw mulch. This combination treatment is well suited for steep slopes, critical areas and severe climate conditions.
- ✓ Manure Mulches — Manure mulches should be well aged and are not recommended for use near water bodies.
- ✓ Nets and Mats — Used alone, netting does not retain soil moisture or modify soil temperature. It stabilizes the soil surface while grasses are being established, and is useful in grassed waterways and on slopes. Light netting may also be used to hold other mulches in place. There are some organic materials, such as jute and excelsior, which are available in the form of mats.

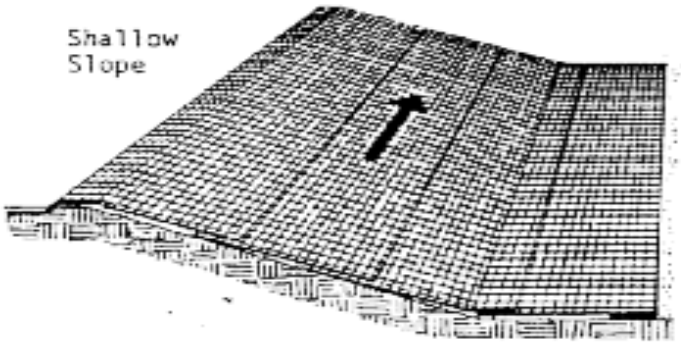
The most critical aspect of installing nets and mats is obtaining firm, continuous contact between the material and the soil. Without such contact, the material is useless and erosion occurs. It is important to use an adequate number of staples and to roll the material after laying it to ensure that the soil is protected.

Design Criteria

- ✓ Erosion blankets (nets and mats) may be used on level areas, on slopes up to 50 percent, and in waterways. Where soil is highly erodible, nets shall only be used in connection with organic mulch such as straw and wood fiber. Jute nets shall be heavy, uniform cloth woven of single jute yarn, which if 36 to 48 inches (1 to 1.25 m) wide shall weigh an average of 1.2 lb./linear yard (0.6 Kg per linear meter). It must be so applied that it is in complete contact with the soil. If it is not, erosion will occur beneath it. Netting shall be securely anchored to the soil with No. 11 gauge wire staples at least 6 inches (150 mm) long, with an overlap of 3 inches (75 mm).
- ✓ Excelsior blankets are considered protective mulches and may be used alone on erodible soils and during all times of year.

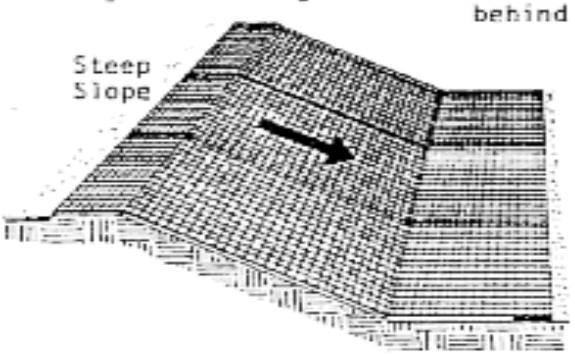
Maintenance

- ✓ Mulched areas should be checked periodically, especially following severe storms, when damaged areas of mulch or tie-down material should be repaired.
- ✓ All temporary erosion and sediment control measures that prohibit vegetative growth shall be removed within 30 days after final site stabilization is achieved or after the temporary BMP's are no longer needed. Trapped sediment shall be removed or stabilized on-site. Disturbed soil areas resulting from removal shall be permanently stabilized.



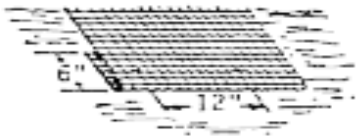
On shallow slopes, strips of netting may be applied across the slope.
(Slopes up to 1:1)

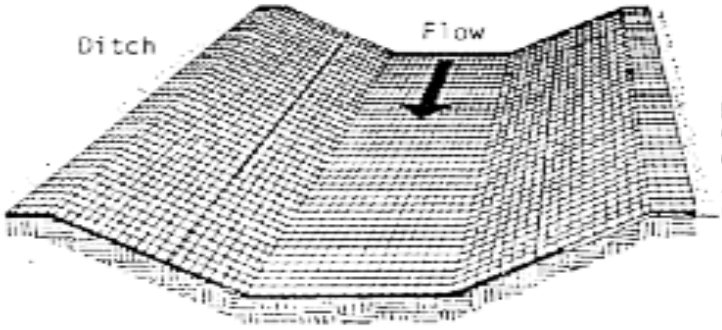
Where there is a berm at the top of the slope, bring the netting over the berm and anchor it behind the berm.



On steep slopes, apply strips of netting parallel to the direction of flow and anchor securely.
(Slopes greater than 1:1)

Bring netting down to a level area before terminating the installation. Turn the end under 6" and staple at 12" intervals.





In ditches, apply netting parallel to the direction of flow. Use check slots every 15 feet. Do not join strips in the center of the ditch.